AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

1.–28. (Canceled)

29. (Currently Amended) A method of managing information exchanges in an outdoor worksite with an office on said outdoor worksite, said outdoor worksite comprising any one of a civil engineering worksite, a landscaping worksite, a road or rail link construction worksite or a mining worksite, by networked items of apparatus which perform tasks in connection with said outdoor worksite and which receive and/or send data, the method using an electronic data network comprising management means cooperating with a plurality of communications interfaces, a given said networked item of apparatus having a data link with a specified communications interface, said networked items of apparatus comprise networked mobile items of apparatus and networked static items of apparatus, each networked mobile item of apparatus and networked static item of apparatus being capable of communication with any other networked mobile and static item of apparatus within communication range of its communications interface, wherein all said networked items of apparatus are organized in a plurality of hierarchical levels according to a determined dependency relationship of the outdoor worksite, and in that said management means which includes a processor and memory and performs the method comprising the following acts:

storing a correspondence between each said networked item of apparatus and an address structure reflecting the hierarchical position of that networked item of apparatus in said determined dependency relationship of the civil engineering, landscaping, road or rail link

construction, or mining worksite in a database, the networked items of apparatus including the mobile items and static items of apparatus;

operating by converting a first address structure reflecting a hierarchical position of a selected earth moving mobile networked item of apparatus into a corresponding first device address for accessing said selected earth moving mobile networked item of apparatus on said electronic data network;

using that first device address to establish a communications link with said selected earth moving mobile networked item of apparatus, via its communications interface, in response to a first call addressed with an address structure reflecting the hierarchical position of said selected earth moving mobile networked item of apparatus;

operating by converting a second address structure reflecting the hierarchical position of a selected static networked item of apparatus into a corresponding second device address for accessing said selected static networked item of apparatus on said electronic data network; [[and]]

using that second device address to establish a communications link with said static networked item of apparatus, via its communications interface, in response to a second call addressed with an address structure reflecting the hierarchical position of said selected static item of apparatus; and

assigning a separate class/sub-class, in said hierarchical position relation, to items of apparatus as a function of whether they are static or mobile on the worksite.

30.-31. (Canceled)

32. (Previously Presented) A method according to claim 29, wherein said address structure is an IP (Internet Protocol) address.

33. (Previously Presented) A method according to claim 29, wherein said address structure reflecting the hierarchical position of said selected item of apparatus is expressed as a directory-path.

34. (Previously Presented) A method according to claim 29, wherein said worksite is identified by a generic portion of a said address structure that comprises said address structure reflecting the hierarchical position of a selected item of apparatus.

35. (Previously Presented) A method according to claim 29, wherein said address structure reflecting a hierarchical position of a said item of apparatus is a Uniform Resource Locator (URL), said URL having a directory-path portion corresponding to said address structure reflecting the hierarchical position of said selected item of apparatus.

36. (Previously Presented) A method according to claim 35, wherein said uniform resource locator includes a hostname portion that is specific to said worksite.

37. (Canceled)

38. (Previously Presented) A method according to claim 29, further comprising an act of converting an address structure designating an item of apparatus to be accessed in accordance with a second hierarchy, the second hierarchy being different from the hierarchy used by the management means to organize the hierarchical levels according to said determined dependency relationship, into the address in said electronic network of said designated item of apparatus.

39. (Canceled)

40. (Previously Presented) A method according to claim 39, wherein at least some items of mobile apparatus perform the act of relaying messages over said electronic network.

41. (Previously Presented) A method according to claim 39, further comprising an act of determining a current position of items of mobile apparatus and the act of managing the distribution of messages within said electronic network according to the items' current position.

42. (Previously Presented) A method according to claim 29, wherein a first level of class/sub-class of item of apparatus, in said hierarchical position relation, comprises mobile units, a second level of sub-class being at least one command responsive functionally within a said mobile unit.

43. (Previously Presented) A method according to claim 29, further comprising an act of securing communications by providing technical means for restricting access to the network to only authorized communications interfaces.

44. (Previously Presented) A method according to claim 29, further comprising an act of limiting data transmissions to between only those items of apparatus which are mutually compatible or expected to communicate with each other over said electronic network.

45. (Previously Presented) A method according to claim 44, further comprising the act of providing a centralized monitoring and/or management of messages exchanged over said electronic network.

46. (Previously Presented) A method according to claims 29, further comprising an act of providing a centralized management of static or dynamic identification allocation to the communications interfaces operating in the network.

47. (Previously Presented) A method according to claim 29, further comprising an act of executing automatically a work plan programming said tasks of said items of apparatus automatically to conduct operations in said worksite, commands of said work plan designating selectively to said items of apparatus using said address structure reflecting the hierarchical position of said selected item(s) of apparatus.

48. (Previously Presented) A method according to claim 29, wherein said items of apparatus communicate to each other selectively, a call being made from one item of apparatus to another using said address structure reflecting the hierarchical position of said selected item of apparatus.

49. (Previously Presented) A method according to claim 29 for managing an automated worksite further comprising an act of sending commands to a contour changing apparatus and to an on-board apparatus through a defined protocol, the commands being elaborated from a predetermined model.

50. (Previously Presented) A method according to claim 29 for managing an automated worksite in which physical and logical addressing of the communication interfaces is separated with a unique ID other than the IP address.

51. (Previously Presented) A method according to claim 50, wherein the physical and logical addressing includes multiple different IP and/or unique ID addressing.

52. (Previously Presented) A system for managing information exchanges in an outdoor worksite with an office on said outdoor worksite, said outdoor worksite comprising any one of a civil engineering worksite, a landscaping worksite, a road or rail link construction worksite or a mining worksite, the networked items of apparatus including mobile and static items of apparatus comprising:

an electronic communications network connecting items of apparatus which perform tasks in connection with said outdoor worksite and which receive and/or send data, the items of apparatus comprise the mobile items of apparatus and static items of apparatus, the electronic communications network comprising:

management means cooperating with a plurality of communications interfaces, a given said item of apparatus having a data link with a specified said communications interface, wherein all said networked items of apparatus are organized in a plurality of hierarchical levels according to a determined dependency relationship of the outdoor worksite, each networked item of apparatus being capable of communication with any other networked item of apparatus within communication range of its communications interface, said management means comprising:

means for storing a correspondence between both a selected earth moving mobile item of apparatus and a selected static item of apparatus and an address structure reflecting the hierarchical position of those items of apparatus in said determined dependency relationship of the outdoor worksite in a database;

means for operating by converting said address structures reflecting the hierarchical positions of the selected items of apparatus into corresponding device addresses for accessing said selected items of apparatus on said electronic network; and

means operating on the basis of said device addresses to establish communications links with the selected items of apparatus, via their communications interfaces, in response to a call addressed with an address structure reflecting the hierarchical position of said selected items of apparatus.

53.-54. (Canceled)

55. (Previously Presented) A system according to claim 52, wherein the device address includes an IP (Internet Protocol) address.

56. (Previously Presented) A system according to claim 52, wherein said address structure reflecting the hierarchical position of said selected item of apparatus is expressed as a directory-path.

57. (Previously Presented) A system according to claim 52, wherein said worksite is identified by a generic portion of a said address structure that comprises said address structure reflecting the hierarchical position of a selected item of apparatus.

58. (Previously Presented) A system according to claim 52, wherein said address structure reflecting a hierarchical position of a said item of apparatus is a Uniform Resource Locator (URL), said URL having a directory-path portion of corresponding to said address structure reflecting the hierarchical position of said selected item of apparatus.

59. (Previously Presented) A system according to claim 58, wherein said URL includes a hostname portion that is specific to said worksite.

60. (Previously Presented) A method according to claim 29, further comprising an act of assigning a separate class or subclass in the hierarchical position relation to the items of apparatus as a function of whether the items of apparatus are static or mobile on the worksite.

61. (Currently Amended) A method of managing information exchanges in an outdoor worksite with an office on said outdoor worksite, said outdoor worksite comprising any one of a civil engineering worksite, a landscaping worksite, a road or rail link construction worksite or a mining worksite, by networked items of apparatus which perform tasks in connection with said outdoor worksite and which receive and/or send data, the method using an electronic data network comprising management means cooperating with a plurality of communications interfaces, a given said networked item of apparatus having a data link with a specified communications interface, said networked items of apparatus comprise mobile items and static items, wherein all said networked items of apparatus are organized in a plurality of hierarchical levels according to a determined dependency relationship of the outdoor worksite, and in that said management means which includes a processor and memory and performs the method comprising the following acts:

storing a correspondence between each said networked item of apparatus and an address structure reflecting the hierarchical position of that networked item of apparatus in said determined dependency relationship of the civil engineering, landscaping, road or rail link construction, or mining worksite in a database, the networked items of apparatus including the mobile items and static items of apparatus;

operating by converting said address structure reflecting a first hierarchical position of a selected networked item of apparatus into a corresponding device address for accessing said selected networked item of apparatus on said electronic data network;

using that device address to establish a communications link with said selected networked item of apparatus, via its communications interface, in response to a call addressed with an address structure reflecting the hierarchical position of said selected networked item of apparatus; and

converting an address structure designating an item of apparatus to be accessed in accordance with a second hierarchy, the second hierarchy being different from the hierarchy used by the management means to organize the hierarchical levels according to said determined dependency relationship, into the address in said electronic network of said designated item of apparatus, wherein the second hierarchy defines a type of networked item of worksite apparatus, wherein the first and second hierarchies are dynamically changeable based on the progress of the worksite, addition of one or more new items of apparatus to the worksite, and reassignment of one or more items of apparatus on the worksite.

62. (Previously Presented) A method according to claim 61, wherein the first hierarchical position defines whether the selected networked item of apparatus is a static or mobile apparatus and the second hierarchy defines the type of mobile or static apparatus.

63. (Previously Presented) A method according to claim 62, wherein the second hierarchy includes definition of a bulldozer or mechanical shovel as the type of mobile apparatus.

64. (Previously Presented) A method according to claim 61, further comprising converting an address structure designating an item of apparatus to be accessed in accordance with a third hierarchy, the third hierarchy being different from the first and second hierarchies.

65. (Previously Presented) A method according to claim 64, wherein the third hierarchical position defines different groups of devices under central command of the device belonging to the second hierarchy.

66. (Previously Presented) A method of managing information exchanges in an outdoor worksite with an office on said outdoor worksite, said outdoor worksite comprising any one of a civil engineering worksite, a landscaping worksite, a road or rail link construction worksite or a mining worksite, by networked items of apparatus which perform tasks in connection with said outdoor worksite and which receive and/or send data, the method using an electronic data network comprising management means cooperating with a plurality of communications interfaces, a given said networked item of apparatus having a data link with a specified communications interface, said networked items of apparatus comprise mobile items and static items, wherein all said networked items of apparatus are organized in a plurality of

hierarchical levels according to a determined dependency relationship of the outdoor worksite, and in that said management means which includes a processor and memory and performs the method comprising the following acts:

storing a correspondence between each said networked item of apparatus and an address structure reflecting the hierarchical position of that networked item of apparatus in said determined dependency relationship of the civil engineering, landscaping, road or rail link construction, or mining worksite in a database, the networked items of apparatus including the mobile items and static items of apparatus;

operating by converting said address structure reflecting the hierarchical position of a selected networked item of apparatus into a corresponding device address for accessing said selected networked item of apparatus on said electronic data network;

using that device address to establish a communications link with said selected networked item of apparatus, via its communications interface, in response to a call for position coordinates addressed with an address structure reflecting the hierarchical position of said selected networked item of apparatus;

receiving a position message from the selected networked item of apparatus the position message containing the coordinates of the selected networked item of apparatus and its identification information; and

updating a position table with the coordinates of the selected networked item of apparatus.

67. (Currently Amended) A method according to claim 66, further comprising transmitting the position table containing [[the]]current position coordinates of all communication interfaces at the worksite to at least selected networked item of apparatus as well as other networked items of apparatus within communication range of the management means.

68. (Previously Presented) A method of managing information exchanges in an outdoor worksite with an office on said outdoor worksite, said outdoor worksite comprising any one of a civil engineering worksite, a landscaping worksite, a road or rail link construction worksite or a mining worksite, by networked items of apparatus which perform tasks in connection with said outdoor worksite and which receive and/or send data, the method using an electronic data network comprising management means cooperating with a plurality of communications interfaces, a given said networked item of apparatus having a data link with a specified communications interface, said networked items of apparatus comprise mobile items of apparatus and static items of apparatus, wherein all said networked items of apparatus are organized in a plurality of hierarchical levels according to a determined dependency relationship of the outdoor worksite, and in that said management means which includes a processor and memory and performs the method comprising the following acts:

storing a correspondence between each said networked item of apparatus and an address structure reflecting the hierarchical position of that networked item of apparatus in said determined dependency relationship of the civil engineering, landscaping, road or rail link construction, or mining worksite in a database, the networked items of apparatus including the mobile items and static items of apparatus;

operating by converting said address structure reflecting the hierarchical position of a selected networked item of apparatus into a corresponding device address for accessing said selected networked item of apparatus on said electronic data network, the device address including data identifying a context of the selected networked item of apparatus such that the selected networked item of apparatus is ascertainable from other networked items of apparatus on the worksite from the device address alone; and

using that device address to establish a communications link with said selected networked item of apparatus, via its communications interface, in response to a call addressed with an address structure reflecting the hierarchical position of said selected networked item of apparatus.

69. (Previously Presented) A method according to claim 68, further comprising receiving and storing positional coordinates from the mobile and static items of apparatus.

70. (Previously Presented) A method according to claim 69, further comprising relaying the stored positional coordinates to the mobile and static items of apparatus.